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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/682,236	10/09/2003	Yoshihiro Kawano	16121	1021
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SCULLY SCOTT MURPHY & PRESSER, PC 400 GARDEN CITY PLAZA SUITE 300 GARDEN CITY, NY 11530			EXAMINER WILLIAMS, DON J	
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Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

10/682,236

Applicant(s)

KAWANO ET AL.

Examiner

Don Williams

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 December 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over MacAulay et al in view of Hoffmann et al (US2002/0024015).

As to claim 1, MacAulay et al disclose a scanning optical microscope with an illumination light source (4), a (lens) (see fig. 3) for altering the cross-sectional shape ratio of a beam of light emitted from the light source (4); one (lens) (fig. 3) for converging beams of light of different cross-sectional shape ratio to create a linear light; a first light modulation member (8) for imparting shade to the converged linear light; one lens (40) forming the light to which the shade has been imparted as a parallel light; one scanning member (38) for altering the angle of the illumination; one lens (12) for focusing the light to which the shade has been imparted; an objective lens (20) for projecting the light to which the shading has been imparted to a sample body (22); and one (lens) for imaging the reflected light from the sample body (22) or the light generated by the sample body (22) on a light detecting element (32). MacAulay et al fail to explicitly disclose one scanning member being disposed between the first light modulation member and a sample body. Hoffman and MacAulay are related as optical

scanning microscopes. Hoffman et al disclose one scanning member (8) being disposed between the first spatial light modulator (19) and an object (5). It would have been obvious for one ordinary skill in the art to use one scanning member (8) being disposed between the first spatial light modulator (19) and an object (5) as disclosed by Hoffmann et al since such is a mere rearrangement of parts and does not alter the function of the system and thus improving the signal to noise ratio by allowing clear and precise images of the target (5) to be displayed on a screen or display device for further critical examination, (see figure 1, paragraph [0038], figure 3 and figure 4, paragraph [0038]).

As to claim 2, the modified MacAulay et al disclose a scanning optical microscope with a light detecting element (32) as an imaging device, (see column 9, lines 28-35, fig. 1, column 16, lines 29-33).

As to claim 3, the modified MacAulay et al disclose a scanning optical microscope wherein the light source maybe that of a laser and a white light source (see column 9, lines 50-54).

As to claim 4, the modified MacAulay et al disclose a scanning optical microscope with a white light source, an arc lamp or a laser. The modified MacAulay et al fail to disclose the exact group as claimed consisting of a high pressure mercury lamp, xenon lamp, halogen lamp and a metal halide lamp. It would have been obvious for one ordinary skill in the art to modify MacAulay et al to replace the white light source or a xenon arc lamp with any selected from the claimed group since they are functionally equivalent means of illuminating a sample.

As to claim 5, the modified MacAulay et al disclose a scanning optical microscope with a plurality of spatial light modulators (178B, 178G, 178R) with the capability to impart a confocal effect to light from the sample body (22), and the confocal effect can be one of optimized and reduced by changing of one of the beam diameter and number of the beams of the light transmitted through the light modulation members, (178B, 178G, 178R), (see figure 6, column 11, lines 1-5).

As to claim 6, the modified MacAulay et al disclose a (computer) for controlling the speed regulation of the scanning mirror (38); the illumination pattern of the spatial light modulator (8), and the ON/OFF irradiation of the illumination light on the sample body (22), (see column 3, lines 51, column 4, line 3.)

As to claim 7, the modified MacAulay et al disclose digital mirror device (8), lens (40), and optical member (6). The modified MacAulay et al fail to disclose a diffraction grating. Hoffmann et al disclose a grating pair (14, 15). It would have been obvious for one ordinary skill in the art to modify MacAulay et al to include the grating pair (14, 15) as disclosed by Hoffmann et al to reflect and spread the scanning beam across the sample to acquire a precise light spot on the sample when being scanned, (see paragraph [0047]).

As to claim 8, the modified MacAulay et al disclose that the spatial light modulator is a one dimensional mirror array. The modified MacAulay et al fail to disclose MEMS (Micro Electro Mechanical System) mirrors as the spatial light modulators. Hoffmann et al disclose a spatial light modulator (19) may be a liquid crystal modulators. It would have been obvious for one ordinary skill in the art to modify

MacAulay et al to include liquid crystals modulators and micromirror arrays to improve the illumination of the sample image, (see paragraph [0028]).

As to claim 9, the modified MacAulay et al disclose spatial light modulator (8), (see fig. 3, column 15, lines 60-67).

As to claim 10, the modified MacAulay disclose scanning galvanometer mirror (38) and a single point illumination light can be shifted by controlling the spatial light modulator (8) with alterable shade patterns, (see fig. 3, column 15, lines 60-64).

As to claim 11, the modified MacAulay et al disclose light modulation member (8) imparts various alterable shade patterns where a confocal image is produced by plurality of points (plurality of spots) and the sample body (22) can be simultaneously illuminated, (see column 1, lines 19-30, column 3, 1-43, column 8, lines 12-39, column 5, 48-67).

As to claim 12, the modified MacAulay et al disclose light modulation member (8) is capable of altering a shade, one segment of the visual field is simultaneously illuminated and the sample body (22) is scanned with a linear light, (see column 1, lines 19-30, column 8, lines 12-39, column 5, lines 48-67).

As to claim 13, the modified MacAulay et al disclose (see fig. 3) lenses aligned in the direct path of the light source (4). The lenses are functionally equivalent to one or more cylindrical lens and one or more f-theta lens in that they alter the cross-sectional shape of the beam.

As to claim 14, the modified MacAulay et al disclose galvanometer mirror (38), (see fig. 3, column 15, lines 60-67).

As to claim 15, the modified MacAulay et al disclose sample body (22) is scanned several times by linear illumination lights (8) of different shade patterns and one image is produced from the plurality of scanned patterns, (see column 1, lines 20-51, column 10, lines 53-67).

As to claim 16, the modified MacAulay et al disclose a laser (4) and a laser beam from the laser (4) is introduce into the lens (16) and (18) through a fiber (14), (see fig. 1, column 10, lines 53-67).

As to claim 17, the modified MacAulay et al disclose fluorescent and sample body (22), (column 8, lines 40-56). The modified MacAulay et al fail to disclose the use of an ultra short pulse laser, multi-photon excitation with two photon and three photon excitation. Hoffmann et al disclose an ultra short pulse laser, a multi-photon excitation with a two photon and a three photon excitation. It would have been obvious for one ordinary skill in the art to modify MacAulay to include an ultra short pulse laser, a multi-photon excitation comprising of to two photon and three photon excitation to illuminate the sample in order to improve and obtain a clear and precise image, (see paragraph [003]).

As to claim 18, the modified MacAulay et al fail to disclose a titanium sapphire laser. Hoffmann et al disclose a titanium sapphire laser. It would have been obvious for one ordinary skill in the art to modify MacAulay et al to include a titanium sapphire laser as disclosed by Hoffmann et al to excite the sample (5) in order to obtain a clear optical image, (see paragraph [003]).

As to claim 19, the modified MacAulay et al disclose a photo detector (32), sample body (22), and modulation member (8), (see fig. 1, column 10, lines 53-67). The modified MacAulay et al fail to disclose spectral diffraction device, an explicit acousto-optic modulator, and prism. Hoffmann et al disclose a grating pair (14, 15), spatial modulation means (19) and prisms (16, 17). It would have been obvious for one ordinary skill in the art to modify MacAulay to include a grating pair (14, 15), spatial modulation means (19) and prisms (16, 17) to reflect or alter and spectrally spread the scanning beam as disclosed by Hoffmann et al to increase the optical efficiency in order to acquire a precise light spot on the sample when being scanned, (see paragraph [0047]).

As to claim 20, the modified MacAulay et al disclose Raman spectrum, (column 1, lines 20-30, column 8, lines 40-50).

As to claim 21, the modified MacAulay et al disclose a two-dimensional imaging device (CCD), (see column 9, lines 25-36, column 16, lines 29-30).

As to claim 22-24, the modified MacAulay et al disclose (CCD) charge couple device camera. MacAulay et al fail to disclose the exact type of CCD camera or detecting elements claimed. It would have been obvious for one ordinary skill in the art to replace the CCD camera of MacAulay with any selected from the claimed group since they are functionally equivalent as means of detecting light from a sample, (see fig. 1, column 7, lines 4-42, column 9, lines 23-40).

As to claim 25, the modified MacAulay et al disclose lens system (20) for focusing a plurality of different wavelengths on the light detecting element (32), (see fig. 1, column 8, lines 40-50).

Applicant's arguments filed on December 9, 2005 have been fully considered but they are not persuasive.

Examiner further notes that MacAulay et al disclose all claimed elements within the apparatus, but does not explicitly disclose the scanning member positioned between the first modulation member and a sample body. However, Hoffmann et al disclose a scanning member positioned between the first modulation member and a sample body which is a mere rearrangement of parts and does not alter the function or the efficiency of the system.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Don Williams whose telephone number is 571-272-8538. The examiner can normally be reached on 8:30a.m. to 5:30a.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Epps can be reached on 571-272-2328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


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